

Engineering Heritage Australia (Victoria)  
Reply to 62 Relowe Cres, Mont Albert North, 3129

21 August 2003

The Administrator  
Engineering Heritage Australia  
The Institution of Engineers, Australia  
11 National Circuit  
BARTON, ACT, 2600

Dear Administrator

**Recognition of the CSIRAC Computer with a Historic Engineering Plaque**

Enclosed, for consideration by Engineering Heritage Australia's Commemorative Plaquing Sub-Committee are copies of the documentation covering a nomination for recognition of the CSIRAC Computer located in Victoria with a Historic Engineering Marker. The nomination form, a location map, a copy of the letter of agreement, and a suggested wording for the plaque, are also enclosed.

In addition, I have enclosed one copy of a book entitled "The Last of the First - CSIRAC: Australia's First Computer," published by the Department of Computer Science and Software Engineering of The University of Melbourne, that describes the history, and the significance of this machine. The book is too costly to provide more than one copy, so it is suggested that the copy be circulated among the assessment panel members.

Yours sincerely

Dr B. C. S. Harper  
Chair, Engineering Heritage Australia (Victoria)

**Nomination Form**  
**Australian Historic Engineering Plaquing**

The Administrator  
Engineering Heritage Australia  
The Institution of Engineers, Australia  
Engineering House  
11 National Circuit  
BARTON ACT 2600

Name of work: CSIRAC COMPUTER

The above-mentioned work is nominated to be awarded a.

- ~~National Engineering Landmark\*~~
- Historic Engineering Marker\*

\*(Delete as appropriate)

Location, including address and map grid reference if a fixed work:

Museum Victoria, Rathdowne Street, Melbourne  
adjacent to the Royal Exhibition Building in Carlton Gardens

Owner: Museum Victoria, C-PO Box 666 E, Melbourne 3001

The owner has been advised of this nomination, and a letter of agreement is attached. ✓

Access to site: The computer is on display to museum visitors

Nominating Body: Engineering Heritage Australia (Victoria)

Chair of Nominating Body

Date:

Bob Harper

Chair of Division Engineering Heritage Group

Date: 25 August 2003

Suggested text for plaque.

#### **CSIRAC Computer**

This computer, the first in Australia, and the fourth or fifth of the first generation of electronic stored-program computers in the world to run a program, was built by the CSIR Division of Radio Physics. It represents the successful translation of new scientific concepts into a valuable working tool through the skill of the electrical engineer. It first operated in 1950 and with upgrading continued to operate until 1964, performing computations for scientific, industrial and engineering projects.

**INSTITUTION OF ENGINEERS, AUSTRALIA**  
**ENGINEERING HERITAGE AUSTRALIA (VICTORIA)**

**PLAQUING NOMINATION**

<b>Item Name:</b>	<b>CSIRAC: Australia's First Computer</b>
<b>Address:</b>	Museum Victoria, Rathdowne Street, Melbourne, Vic. 3000
<b>State:</b>	Victoria.
<b>Other/Former Names:</b>	CSIR Mk1
<b>Local Govt. Area:</b>	City of Melbourne
<b>Owner:</b>	Museum Victoria
<b>Current Use:</b>	No longer able to operate. Available for display and interpretation purposes.
<b>Former Uses:</b>	Scientific and engineering and other computing tasks plus computer programming training
<b>Assessed Significance:</b>	National and international
<b>Statement of Significance:</b>	The CSIR Mk1 was one of the earliest electronic stored-program computers in the world and is believed to be the only first generation electronic computer whose hardware is still essentially intact. The computer was designed and constructed in Australia and at the time Australia was arguably at the leading edge of this emerging field of technological development. The computer was in regular use from 1951 to 1964 during which time it was progressively improved. It performed computations for a wide range of scientific, industrial and engineering projects as well as serving as a facility for the learning of computer programming and logical design disciplines.
<b>Historical Notes:</b>	Design and construction of the CSIR Mk 1, later renamed CSIRAC (Commonwealth Scientific and Industrial Research Automatic Computer) commenced in 1947 as a project at the CSIRO Division of Radio Physics in Sydney. It entered into regular computational usage in 1951 and continued to be developed and improved throughout its life. In 1955 it was relocated to Melbourne University and re-commissioned the following year in that University's new Computation Laboratory, marking the beginning of electronic computing in Victoria. CSIRAC operated as an 'open shop' computational facility serving academia, government and private industry until it was finally decommissioned in 1964. By then, it was the oldest first generation electronic computer still in use anywhere. The computer and its associated equipment

was donated to Institute of Applied Science, Victoria, now Museum Victoria, in whose care it has been preserved.

**Designer:**

Trevor Pearcey (mathematician) and Maston Beard (electrical engineer) with input and assistance from other designers and engineers.

**Maker/Builder:**

CSIRO Division of Radio Physics

**Year Started:**

1947

**Year Completed:**

c1950

**Physical Description:**

An assembly of circa late 1940s, early 1950s, electronic equipment, including some 2000 thermionic valves with 32 mercury filled acoustic delay lines forming the primary memory elements and a magnetic disk (replacing the original magnetic drum) secondary memory. The main equipment is contained in a series of adjoining, free-standing steel cubicles with a separate control console and paper tape reader and punch peripherals.

**Physical Condition:**

Generally in good condition, albeit not capable of operation. Continuing conservation by its present owners and custodians, Museum Victoria.

**Modification Dates:**

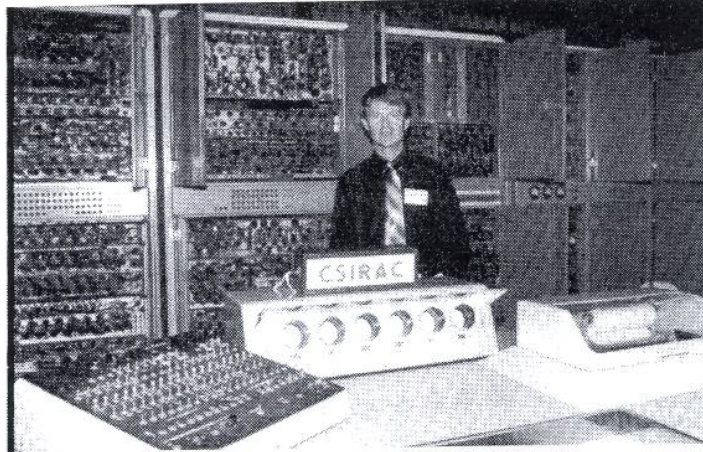
The Mark 1 was subject to ongoing development and improvement throughout its working life. Some notable developments include: a magnetic drum secondary memory in 1952, replaced by a magnetic disc in 1956; improvements to the integrity and performance of the mercury delay line storage devices and the speed of logic circuits in the late 1950s; and the development in 1960 of 'INTERPROGRAM' a simple automatic English-like language for programming.

**SIGNIFICANCE**

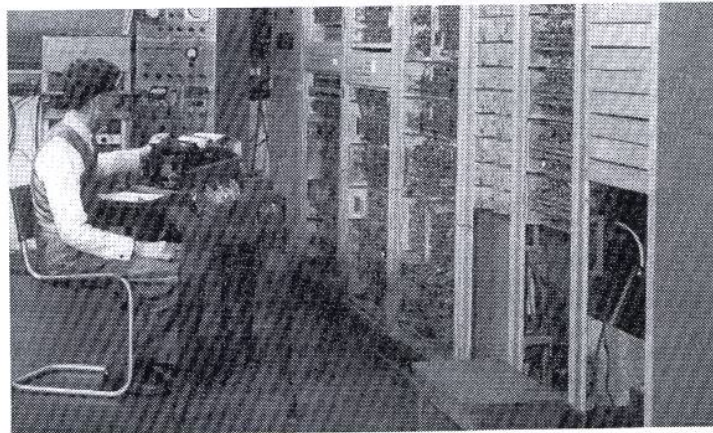
**Historical:**

CSIRAC is was probably the 4<sup>th</sup> or 5<sup>th</sup> first generation, electronic stored-program computer in the world to run a program and is believed to be the only significant one of its genre to be still essentially intact. It was designed and constructed by a collaboration of Australian scientific and engineering endeavour, putting Australia at the forefront of the development of electronic computing technology at the time. The computer was in-service for around 14 years and carried out computations for a wide variety of scientific, industrial and engineering projects.

<b>Historical Association:</b>	A part of the early development of electronic computing world wide and via which Australia was a 'cutting edge' participant.	
<b>Creative or Technical</b>	Innovative development of the use of mercury tube acoustic delay lines for primary storage of instructions and data.	
<b>Achievement:</b>	A successful collaboration of Australian science and engineering skills to produce with limited monetary and physical resources one of the world's early electronic stored-program computers that then, of itself facilitated the furtherance of scientific and engineering developments in Australia as a versatile computational tool.	
<b>Research Potential:</b>	As an early artifact of relatively large scale digital electronics using late 1940s – 1950s technologies, components and constructional methods.	
<b>Social:</b>	An important step in the development of electronic digital computing which has been arguably the most recent major technological advance impacting on society in Australian and the world.	
<b>Rarity:</b>	CSIRAC is believed to be the only major first generation, electronic stored-program computer whose hardware is still extant and in generally good condition.	
<b>Representativeness:</b>	It is representative on an international basis of a major first generation, electronic stored-program computer.	
<b>Integrity/Intactness:</b>	The computer equipment in its associated series of cabinets, plus control console and original peripherals, has been preserved essentially as it was when it was decommissioned in 1964.	
<b>References:</b>	<b>Author:</b> Doug McCann & Peter Thorne	<b>Title:</b> The Last of the First - CSIRAC: Australia's First Computer
<b>Listing:</b>		
<b>Images:</b>	see following pages	



View from console of partially restored computer in 1999



Layout in 1951



1952 view of computer with cabinets doors removed



CSIRAC Computer 23 July 2004



CSIRAC Computer 23 July 2004



Details of CSIRAC Computer 23 July 2004



CSIRAC Computer 23 July 2004

